

CHEMISTRY NMDCAT

(UNIT-9)

TOPICS:

- ✓ **ALKYL HALIDES**
- ✓ **ALCOHOLS AND PHENOLS**

Q.1 $X + KCN \xrightarrow{H^+/OH^-}$ Butanoic acid.

X in above equation

a. Propyl alcohol	b. Butyl chloride
c. Butyl alcohol	d. Propyl chloride

Q.2 Phenol does not evolve CO_2 from $NaHCO_3$ like carboxylic acids because

- a. Phenol is stronger acid than carboxylic acid
- b. Phenol is stronger acid than carbonic acid
- c. Phenol is weaker acid than carboxylic acid
- d. Phenol is aromatic in nature

Q.3 An organic compound, "A" reacts with PCl_5 to give C_2H_5Cl , identify "A" among the following

a. C_2H_5Cl	b. C_2H_5F
c. C_2H_5OH	d. C_2H_5CN

Q.4 An alkyl halide reacts with NH_3 to give

a. Amide	b. Amine
c. Cyanide	d. Aniline

Q.5 The reaction $C_2H_5Cl + \text{aqueous KOH} \rightarrow C_2H_5OH + KCl$ is

a. Electrophilic addition	b. Electrophilic substitution
c. Nucleophilic addition	d. Nucleophilic substitution

Q.6 The dehydration of neo-pentyl alcohol gives mainly

a. $CH_3 - CH_2 - CH = CH_2$	b. $\begin{array}{c} CH_3 - C = CH - CH_3 \\ \\ CH_3 \end{array}$
c. $\begin{array}{c} CH_3 \\ \\ CH_3 - C - CH = CH_2 \\ \\ CH_3 \end{array}$	d. Dehydration cannot take place

Q.7 Which of the following statement is NOT correct about alcohols

- a. Methanol evaporate quickly
- b. Alcohols with less number of carbon atoms are less soluble
- c. Ethanol is weaker acid than water
- d. Alcohols with less number of carbon atoms are more soluble

Q.8 The most reactive mono-halo derivatives of ethane towards nucleophilic substitution will be

a. C_2H_5Br	b. C_2H_5Cl
c. C_2H_5I	d. All are equally reactive

Q.9 Methyl alcohol on oxidation with acidified $K_2Cr_2O_7$ gives

a. CH_3COCH_3	b. $HCOOH$
c. CH_3CHO	d. CH_3COOH

Q.10 46g of Na shall react with methyl alcohol to give

a. Half mole of H_2	b. One mole of O_2
c. One mole of H_2	d. Two mole of H_2



Q.11 Which of the following ketone will not give iodoform test

- a. Methyl isopropyl ketone
- b. Dimethyl ketone
- c. Ethyl isopropyl ketone
- d. 2-hexanone

Q.12 Which one of the following is more acidic in nature

- a. Water
- b. Ethanol
- c. Phenol
- d. Ammonia

Q.13 Which of the following is correct for stability of phenoxide ion

- a. Resonating structure of benzene
- b. Localization of π electrons in phenoxide ion
- c. Delocalization of π electrons in phenoxide ion
- d. All are correct statements

Q.14 How many π electrons are there in planar ring of phenol

- a. 4
- b. 10
- c. 6
- d. 8

Q.15 The oxidation of which of the following compound gives ketone

- a. Butan-2-ol
- b. 2-methyl butan-2-ol
- c. Propan-2-ol
- d. Both a and c

Q.16 Which of the following when dissolved in water gives a solution with pH less than 7 at 298 K

- a. CH_3COCH_3
- b. $\text{C}_2\text{H}_5\text{OH}$
- c. $\text{C}_6\text{H}_5\text{OH}$
- d. $\text{C}_6\text{H}_5\text{NH}_2$

Q.17 Alkyl halides can be converted into corresponding alkene in the presence of

- a. Alcoholic KOH
- b. Alcoholic KCN
- c. Aqueous NH_3
- d. Aqueous KOH

Q.18 In which of the following reactions ethanol acts as a nucleophile

- a. Reaction with PCl_5
- b. Reaction with alkaline aqueous iodine
- c. Reaction with $\text{K}_2\text{Cr}_2\text{O}_7$
- d. Reaction with acetic acid in presence of H_2SO_4

Q.19 Which compound has strongest conjugate base

- a. Ethanoic acid
- b. Water
- c. Phenol
- d. Alcohol

Q.20 $\text{X} + 3\text{Y} \xrightarrow[\text{Heat}]{3/4} \text{picric acid} + 3\text{H}_2\text{O}$, X and Y may be

- a. Phenol + Liquid bromine
- b. Phenol + Formaldehyde
- c. Phenol + Conc. Nitric acid
- d. Benzene + Conc. Nitric acid

Q.21 The reaction of phenol with bromine is type of

- a. Nucleophilic addition
- b. Electrophilic addition
- c. Nucleophilic Substitution
- d. Electrophilic substitution

Q.22 IUPAC name of lactic acid

- a. 2, 3-dihydroxy propanoic acid
- b. 3-hydroxy propanoic acid
- c. 2, 3-dihydroxy but 1, 4 dioic acid
- d. 2-hydroxy propanoic acid

Q.23 Excess of ethyl bromide with NH_3 form

- a. Primary amine
- b. Secondary amine
- c. Tertiary amine
- d. Quaternary amine

Q.24 Phenol reacts with dilute HNO_3 to produce

- a. o-Nitrophenol
- b. Picric acid
- c. p-Nitrophenol
- d. Both "a" and "c"



Q.25 The correct order of acidic strength is

- $\text{RCOOH} > \text{C}_6\text{H}_5\text{OH} > \text{H}_2\text{O} > \text{ROH}$
- $\text{ROH} > \text{H}_2\text{O} > \text{C}_6\text{H}_5\text{OH} > \text{RCOOH}$
- $\text{RCOOH} > \text{C}_6\text{H}_5\text{OH} > \text{ROH} > \text{H}_2\text{O}$
- $\text{RCOOH} > \text{ROH} > \text{C}_6\text{H}_5\text{OH} > \text{H}_2\text{O}$

Q.26 $\text{S}_{\text{N}}2$ reaction depends upon

- Steric hindrance
- Nature of leaving group
- Strength of attacking nucleophile
- All of these

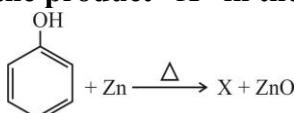
Q.27 Ethyl alcohol is heated with conc. H_2SO_4 at 180°C . The product formed

- CH_3OCH_3
- $\text{C}_2\text{H}_5\text{OCH}_3$
- C_2H_4
- C_2H_2

Q.28 2-Bromo – 2-chloro – 1,1,1-trifluoroethane is commonly known as

- TNT
- Teflon
- Freons
- Halothane

Q.29 The name of the product "X" in the below equation is



$$\text{C}_6\text{H}_5\text{OH} + \text{Zn} \xrightarrow{\Delta} \text{X} + \text{ZnO}$$

- Cyclohexane
- Phenoxide ion
- Cyclohexene
- Benzene

Q.30 Tertiary butyl chloride reacts with aqueous KOH, the product formed contains _____ functional group

- $\text{C} = \text{C}$
- $-\text{OH}$
- $-\text{X}$
- $-\text{SH}$

Q.31 For the following reaction the correct order of reactivity of HX is

$$\text{CH}_3\text{CH}_2\text{OH} + \text{HX} \xrightarrow[3/4]{\text{ZnCl}_4} \text{CH}_3\text{CH}_2\text{X}$$

- $\text{HBr} > \text{HI} > \text{HCl}$
- $\text{HI} > \text{HBr} > \text{HCl}$
- $\text{HI} > \text{HCl} > \text{HBr}$
- $\text{HCl} > \text{HBr} > \text{HI}$

Q.32 For one mole of the following which can produce greater number of moles of ethyl chloride on reacting with excess of ethanol

- PCl_5
- PCl_3
- $\text{HCl} / \text{ZnCl}_2$
- SOCl_2

Q.33 Hydrogen gas is evolved during reaction of Na-metal with all except

- Ethyl Chloride
- Ethyl Alcohol
- Water
- Hydrochloric acid

Q.34 In second step of E1 reaction the base attacks on

- Carbocation
- β -hydrogen
- β -carbon
- α -hydrogen

Q.35 Phenoxide ion is formed from phenol by losing

- Electron pair
- Hydrogen
- Hydroxyl group
- Carbon atom

Q.36 The colour of precipitate of 2, 4, 6-tribromophenol is

- Yellow
- Orange
- Green
- White

Q.37 In ethanol, the bond that undergoes heterolysis during its esterification with CH_3COOH in presence of H_2SO_4 is

- $\text{C} - \text{C}$
- $\text{O} - \text{H}$
- $\text{C} - \text{O}$
- $\text{C} - \text{H}$

Q.38 If 1-chloropropane and 2-chloropropane are treated with alcoholic KOH, it gives

- Propane
- n-Hexane
- Propene
- A mixture of propene and propane



Q.39 Which of the following does not give iodoform on warming with Na_2CO_3 and I_2

- a. Acetone
- b. Isopropyl alcohol
- c. Ethyl alcohol
- d. n-propyl alcohol

Q.40 Which one is a good nucleophile as well as a good leaving group

- a. Cl^-
- b. CN^-
- c. I^-
- d. OH^-

Q.41 The alkyl halide follows $\text{S}_{\text{N}}1$ mechanism is

- a. $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$
- b. $(\text{CH}_3)_2\text{CHCH}_2\text{Cl}$
- c. $\text{CH}_3\text{CH}_2\text{CHClCH}_3$
- d. $(\text{CH}_3)_3\text{C}-\text{Cl}$

Q.42 $\text{X} \xrightarrow[\text{H}_2\text{SO}_4]{\text{K}_2\text{Cr}_2\text{O}_7} \text{CH}_3\text{COCH}_3 \xrightarrow[\text{I}_2/\text{NaOH}]{\text{warm}} \text{CHI}_3$, identify compound "X"

- a. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- b. $\text{CH}_3-\overset{\text{OH}}{\underset{|}{\text{CH}}}-\text{CH}_3$
- c. $\text{CH}_3\text{OCH}_2\text{CH}_3$
- d. $\text{CH}_3\text{CH}_2\text{OH}$

Q.43 $\text{C}_2\text{H}_5\text{OH} + \text{PCl}_5 \longrightarrow ?$

- a. $2\text{C}_2\text{H}_5\text{Cl} + \text{POCl}_3$
- b. $3\text{C}_2\text{H}_5\text{Cl} + \text{H}_3\text{PO}_4 + 2\text{HCl}$
- c. $2\text{C}_2\text{H}_5\text{Cl} + \text{POCl}_3 + \text{H}_2\text{O}$
- d. $\text{C}_2\text{H}_5\text{Cl} + \text{POCl}_3 + \text{HCl}$

Q.44 Which of the following is easily oxidized to the corresponding carbonyl compound

- a. Propanone
- b. 2-Hydroxypropane
- c. 2-Methyl – 2 – hydroxypropane
- d. t-Butyl alcohol

Q.45 The IUPAC name of iodoform is

- a. Tri-iodomethane
- b. Iodoethane
- c. Methyl trichloride
- d. Methyl iodide

Q.46 $\text{CH}_3-\text{CH(Br)}-\text{CH}_3 + \text{KOH}_{(\text{aq})} \longrightarrow \text{Product}$

In the above reaction the product form is

- a. Primary alcohol
- b. Secondary alcohol
- c. Tertiary alcohol
- d. Isobutyl alcohol

Q.47 Reaction of tertiary alkyl halide with KCN in the presence of alcohol follows

- a. $\text{S}_{\text{N}}1$ – mechanism
- b. E_{i} – mechanism
- c. $\text{S}_{\text{N}}2$ – mechanism
- d. E_{2} – mechanism

Q.48 Which of the following is classified as an alkyl halide

- a. CH_3Cl
- b. CH_2Cl_2
- c. CHCl_3
- d. CCl_4

Q.49 The alcohol which can produce iodoform with alkaline aqueous iodine solution

- a. 2-propanol
- b. 2-Methyl – 1 – propanol
- c. 2-Methyl – 2 – propanol
- d. 1-Propanol

Q.50 $\text{A} \xrightarrow[\text{H}_2\text{SO}_4]{\text{K}_2\text{Cr}_2\text{O}_7} \text{B} \xrightarrow[\text{Vigorous Oxidation}]{3/4 \text{ O}_2} \text{CH}_3\text{COOH} + \text{HCOOH}$

If here "B" is propanone so "A" will be

- a. Ethyl Alcohol
- b. n-Propyl alcohol
- c. Isopropyl alcohol
- d. t-Butyl alcohol

Chemistry

1 D	11 C	21 D	31 B	41 O
2 C	12 C	22 D	32 B	42 B
3 C	13 C	23 D	33 A	43 D
4 B	14 C	24 D	34 B	44 B
5 D	15 D	25 A	35 B	45 A
6 D	16 G	26 D	36 D	46 B
7 B	17 A	27 G	37 B	47 A
8 C	18 D	28 D	38 C	48 A
9 B	19 D	29 D	39 D	49 A
10 C	20 C	30 B	40 C	50 C

Physics

1 B	11 D	21 A	31 B	41 C
2 B	12 C	22 D	32 D	42 D
3 D	13 A	23 C	33 C	43 D
4 C	14 A	24 C	34 C	44 D
5 B	15 A	25 D	35 A	45 A
6 A	16 D	26 B	36 A	46 D
7 B	17 B	27 C	37 A	47 B
8 C	18 A	28 C	38 C	48 B
9 D	19 D	29 C	39 B	49 B
10 A	20 C	30 D	40 C	50 B